

## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER OF PATENTS AND TRADEMARKS Washington, D.C. 20231 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,315 04/26/2001		Taketomi Asami	0756-2306	5664
7	590 02/13/2003			
ROBINSON	INTELLECTUAL PI	EXAMINER		
	BANK STREET	BLUM, DAVID S		
POTOMAC FALLS, VA 20165			ART UNIT	PAPER NUMBER +
e est			2813 DATE MAILED: 02/13/2003	18

Please find below and/or attached an Office communication concerning this application or proceeding.

5/12 Amala + 5/27 Sup Amalou +

Application No.   Application   Application						M			
Examiner	•		Application No	).	Applicant(s)				
Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  Laturisies of time may be evaluable under the provisions of 37 CPR 1.10(a). In no eveit, however, may a reply be timely fled when SKR, MONTHS from the maining date of the communication.  If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (9) MONTH from the remaining date of the communication.  If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (9) MONTH from the remaining date of this communication.  If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (9) MONTH from the remaining date of the communication.  If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (9) MONTH from the remaining date of the communication.  If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (9) MONTH from the remaining date of the communication.  If NO period for reply is specified on the specified on the specified on its one should be really and the specified on the specified on its one should be replied to the communication, even if timely flex, may reduce any section of the specified and the specified on the replied on the replied on the maximum statutory and the specified on the maximum statutory and the specified on the provision of a period on the specified on th			09/842,315		ASAMI ET AL.				
Prior MAILING DATE of this communication appears on the cover sheet with the correspondence address - Period for Repty  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  Letaeward rate may be available under the previous of 3 CFR 1-13(a). In no event, however, may a repty be limely filled  the particle of repty is specified above is less than altiny (50) days, a repty with the satutory reminerun of this (50) days, a use of the provision of the prov			Examiner		Art Unit				
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE WAILING DATE OF THIS COMMUNICATION.  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE WAILING TO reply specified above. The maining date of this communication.  If the period for reply specified above, the maining date of this communication.  If the period for reply specified above, the maining date of this communication.  If yo pand for reply specified above, the maining date of the communication and the statutory maining of the period of the reply is specified above, the maining date of the communication are so that the remaining date of the communication, even if timely field, may reduce any seared patent term adjustment. See 7 CPR 1.74(b).  Status  1)									
THE MAILING DATE OF THIS COMMUNICATION.  Lebensions of limite may be available under the provisions of 3 CFR 1.135(a). In no event, however, may a reply be timely filed above 58 (c) MMCM15 from the mailing date of this communication.  I NO percent for reply it specified above, the maximum teathory perce within the statutiony minimum of thiny (30) days will be considered timely.  I NO percent for reply it specified above, the maximum teathory percent alloy and wild surple (5) (6) MMCM15 from the mailing date of this communication. Palars to reply with the statution percent percent by the communication. Palars to reply with the statution percent percent percent by the communication of the communication, even if innerly field, may reduce any service and percent tem supplies to the statution of the communication, even if innerly field, may reduce any service palars to make the mailing date of this communication, even if innerly field, may reduce any service palars to the service percent tem supplies to the service of the communication, even if innerly field, may reduce any service palars to the service percent tem supplies to the service of the service percent tem supplies to the service percent tem sup									
2a)  This action is FINAL. 2b)  This action is non-final.  3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Claims  4)  Claim(s)  1-15 is/are pending in the application.  4a) Of the above claim(s)  is/are withdrawn from consideration.  5)  Claim(s)  is/are allowed.  6)  Claim(s)  is/are rejected.  7)  Claim(s)  is/are rejected to.  8)  Claim(s)  is/are subject to restriction and/or election requirement.  Application Papers  9)  The specification is objected to by the Examiner.  10)  The drawing(s) filed on  is/are: a)  ccepted or b)  objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11)  The proposed drawing correction filed on  is: a)  approved by  disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12)  The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a)  All b)  Some * c)  None of:  1.	<ul> <li>THE MAILING DATE OF THIS COMMUNICATION.</li> <li>Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.</li> <li>If NO period for reply specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).</li> <li>Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</li> </ul>								
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Claims  4) Claim(s) 1-15 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration.  5) Claim(s) is/are allowed. 6) Claim(s) is/are objected to. 8) Claim(s) is/are objected to. 8) Claim(s) is/are objected to by the Examiner.  Application Papers  9) The specification is objected to by the Examiner.  10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) The proposed drawing correction filed on is a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1. Certified copies of the priority documents have been received in Application No application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 120 and/or 121.  Attachments)  1) Interview Summary (PTO-413) Paper No(s) Sillow of In	1)⊠ F	desponsive to communication(s) filed on 06.	January 2003 .						
Disposition of Claims  4)	2a) <u></u> ⊤	his action is <b>FINAL</b> . 2b)⊠ Th	nis action is non-	final.					
4) ☐ Claim(s) 1-15 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) is/are rejected. 7) ☐ Claim(s) is/are objected to. 8) ☐ Claim(s) are subject to restriction and/or election requirement.  Application Papers 9) ☐ The specification is objected to by the Examiner. 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) ☐ The proposed drawing correction filed on is: a) ☐ approved b) ☐ disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action. 12) ☐ The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. § 119 and 120  13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) ☐ All b) ☐ Some * c) ☐ None of:  1. ☐ Certified copies of the priority documents have been received. 2. ☐ Certified copies of the priority documents have been received in Application No 3. ☐ Copies of the certified opies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) ☐ The translation of the foreign language provisional application has been received.  15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 120 and/or 121.  Attachment(s)  Notice of References Cited (PTO-892) 3 ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s)									
4a) Of the above claim(s) is/are withdrawn from consideration.  5) □ Claim(s) is/are allowed.  6) ☒ Claim(s) is/are rejected.  7) □ Claim(s) is/are rejected.  7) □ Claim(s) is/are objected to.  8) □ Claim(s) are subject to restriction and/or election requirement.  Application Papers  9) □ The specification is objected to by the Examiner.  10) □ The drawing(s) filed on is/are: a) □ accepted or b) □ objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) □ The proposed drawing correction filed on is: a) □ approved b) □ disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) □ The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) ☒ All b) □ Some * c) □ None of:  1. ☒ Certified copies of the priority documents have been received.  2. □ Certified copies of the priority documents have been received in Application No  3. □ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) □ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) □ The translation of the foreign language provisional application has been received.  15) □ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 120 and/or 121.  Attachment(s)  Notice of Parlsperson's Patent Drawing Review (PTO-948)  5 □ Notice of Informal Patent Application (PTO-152)  3 □ Information Disclosure Statement(s) (PTO-1449) Paper No(s)	Disposition	of Claims							
5)  Claim(s) is/are allowed. 6)  Claim(s) is/are rejected. 7)  Claim(s) is/are objected to. 8)  Claim(s) is/are objected to. 8)  Claim(s) are subject to restriction and/or election requirement.  Application Papers  9)  The specification is objected to by the Examiner.  10)  The drawing(s) filed on is/are: a)  decepted or b)  objected to by the Examiner.     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11)  The proposed drawing correction filed on is: a)  deproved b)  disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12)  The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. § 119 and 120  13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a)  All b)  Some * c)  None of:  1.  Certified copies of the priority documents have been received.  2.  Certified copies of the priority documents have been received in Application No  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a)  The translation of the foreign language provisional application has been received.  15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  Notice of Partsperson's Patent Drawing Review (PTO-948)  5)  Notice of Informal Patent Application (PTO-152)  9)  Notice of Informal Patent Application (PTO-152)	•								
6  Claim(s) 1-15 is/are rejected. 7  Claim(s) is/are objected to. 8  Claim(s) is/are objected to. 8  Claim(s) are subject to restriction and/or election requirement.  Application Papers 9  The specification is objected to by the Examiner. 10  The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11  The proposed drawing correction filed on is: a) approved by disapproved by the Examiner.     If approved, corrected drawings are required in reply to this Office action. 12  The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).     a) All b) Some * c) None of:     1.  Certified copies of the priority documents have been received.     2.  Certified copies of the priority documents have been received in Application No  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 119(e) (to a provisional application).     a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  10  Notice of Pafeperson's Patent Drawing Review (PTO-948)  30  Interview Summary (PTO-413) Paper No(s)  Notice of Informal Patent Application (PTO-152)  30  Information Disclosure Statement(s) (PTO-1449) Paper No(s)  60  Other:									
7) Claim(s) is/are objected to. 8) Claim(s) are subject to restriction and/or election requirement.  Application Papers  9) The specification is objected to by the Examiner.  10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  10 Notice of Draftsperson's Patent Drawing Review (PTO-948)  30 Information Disclosure Statement(s) (PTO-1449) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) Other:									
8) Claim(s) are subject to restriction and/or election requirement.  Application Papers  9) The specification is objected to by the Examiner.  10) The drawing(s) filed on is/are: a coepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No.  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) Other:	6)⊠ CI	aim(s) <u>1-15</u> is/are rejected.							
Application Papers  9) The specification is objected to by the Examiner.  10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  2) Notice of Traftsperson's Patent Drawing Review (PTO-948)  5) Notice of Informal Patent Application (PTO-152)  6) Other:	7)□ CI	aim(s) is/are objected to.							
9) The specification is objected to by the Examiner.  10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  4) Interview Summary (PTO-413) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  6) Other:	8) <u></u> CI	aim(s) are subject to restriction and/o	or election requir	ement.					
10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) ☐ The proposed drawing correction filed on is: a) ☐ approved b) ☐ disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) ☐ The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) ☒ All b) ☐ Some * c) ☐ None of:  1. ☒ Certified copies of the priority documents have been received.  2. ☐ Certified copies of the priority documents have been received in Application No  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) ☐ The translation of the foreign language provisional application has been received.  15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) ☒ Notice of References Cited (PTO-892)	Application	Papers							
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11) The proposed drawing correction filed on is: a) approved by disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  Altachment(s)  1) Notice of Draftsperson's Patent Drawing Review (PTO-948)  5) Notice of Informal Patent Application (PTO-152)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)	9)∐ Th∉	e specification is objected to by the Examine	er.						
11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  4) Interview Summary (PTO-413) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  Notice of Informal Patent Application (PTO-152)	10) The drawing(s) filed on is/are: a) □ accepted or b) □ objected to by the Examiner.								
If approved, corrected drawings are required in reply to this Office action.  12) The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No.  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  4) Interview Summary (PTO-413) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  Notice of Informal Patent Application (PTO-152)	Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).								
12) ☐ The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. §§ 119 and 120  13) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) ☑ All b) ☐ Some * c) ☐ None of:  1. ☑ Certified copies of the priority documents have been received.  2. ☐ Certified copies of the priority documents have been received in Application No  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) ☐ The translation of the foreign language provisional application has been received.  15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) ☑ Notice of References Cited (PTO-892)  2) ☐ Notice of Oraftsperson's Patent Drawing Review (PTO-948)  3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) ☐ Other:	11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner.								
Priority under 35 U.S.C. §§ 119 and 120  13)	If approved, corrected drawings are required in reply to this Office action.								
13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a)  All b)  Some * c) None of:  1.  Certified copies of the priority documents have been received.  2.  Certified copies of the priority documents have been received in Application No  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a)	12) The oath or declaration is objected to by the Examiner.								
a) \[ All \] b) \[ Some * c) \[ None of:  1. \[ Certified copies of the priority documents have been received.  2. \[ Certified copies of the priority documents have been received in Application No  3. \[ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) \[ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) \[ The translation of the foreign language provisional application has been received.  15) \[ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) \[ Notice of References Cited (PTO-892)	Priority under 35 U.S.C. §§ 119 and 120								
1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  1) Interview Summary (PTO-413) Paper No(s)  2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  5) Notice of Informal Patent Application (PTO-152)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) Other:	13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).								
2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  1) Interview Summary (PTO-413) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  Notice of Informal Patent Application (PTO-152)	a)⊠ All b)□ Some * c)□ None of:								
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)	1.	<del>-</del> · · · · · · · · · · · · · · · · · · ·							
application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) Other:									
a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other:	application from the International Bureau (PCT Rule 17.2(a)).								
15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) Other:	14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).								
1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  4) Interview Summary (PTO-413) Paper No(s)  5) Notice of Informal Patent Application (PTO-152)  6) Other:	, <del>_</del>								
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) Other:									

Application/Control Number: 09/842,315

Art Unit: 2813

This action is in response to RCE paper #17, filed 1/6/03.

#### **DETAILED ACTION**

## Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 1-5, 7, 9, 11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teramoto (US 5,773,325) in view of Varhue (US 6,313,017) and Wasserman (US006221766B1).

Teramoto teaches all of the positive steps of claims 1-5, 7, 9, 11, and 13-14 except for in-situ cleaning of the semiconductor film and etch cleaning while spinning the substrate. Teramoto teaches forming an amorphous silicon film (304) on a base film, the amorphous film is recrystallized and patterned (thus forming an island shape), and forming a gate insulating film (305) on the crystalline film.

Varhue teaches that silicon films and substrates must be cleaned of contamination impurities (cleaning or removing material is etching) and does this in an acid containing fluorine (as in claims 13 and 14) and preferably (in-situ) in a load-lock chamber which will avoid exposure to the (clean room air) atmosphere and allow the next layer to be

·Art Unit: 2813

formed (column 5 lines 10-25). Varhue also teaches that if the film is exposed to oxygen atmosphere, it must be recleaned (in-situ) prior to forming the next layer.

Wasserman teaches etching equipment for removing unwanted particles includes a rotatable support for spinning the substrate under a supply of etching solution (column 2 lines 5-10), thus applying an etching solution while spinning the substrate. This method will increase throughput and reduces particulate contamination (column 2 lines 16-20).

Varhue does not recite which impurities are removed in their cleaning processes. The applicant, on page 2, first paragraph of the summary of the invention, states that semiconductor devices are usually produced in clean rooms, but that filters generate impurities (particularly boron) as part of operation (as in claims 13 and 14). Therefore it is inherent to semiconductor fabrication that boron is one of the impurity contaminants on a substrate. Further, the applicant states that if a human being is in the clean room (conventional practice), sodium will be a common impurity contaminant (as in claims 13 and 14). As Varhue teaches cleaning the substrate by the same process as the applicant, and boron and sodium are intrinsically contaminate the substrate, it is obvious that the same chemicals would remove these impurities from the substrate in Varhue as in the instant application (claims 13-14).

It would be obvious to one skilled in the requisite art at the time of the invention to modify Teramoto by including cleaning the film surface as suggested by Varhue (to be a

Application/Control Number: 09/842,315

Art Unit: 2813

1/00/11/01 (4d/11bc): 00/0/12,0

standard semiconductor procedure) and to include etching/cleaning the substrate by a spin method to increase throughput (Wasserman) to produce a device without unwanted impurities (Teramoto column 4 lines 19-21, Varhue column 5 lines 10-12, Wasserman column 2 lines 16-20).

3. Claims 6, 8, 10, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teramoto (US 5,773,325) in view of Varhue (US 6,313,017) and Wasserman (US006221766B1) as applied to claims 1-4, above, and further in view of Lampert (US005181985A).

Teramoto, Varhue, and Wasserman teach all of the positive steps of claims 6, 8, 10, 12, and 15 as recited above, except for rinsing surfaces with pure water containing ozone.

Lampert teaches this step. Lampert rinses wafer surfaces with pure water containing ozone (column 2 line 56). Lampert teaches impurities must be removed to improve CVD oxidation, epi and polysilicon deposition.

It would be obvious to one skilled in the requisite art at the time of the invention to modify the surface by rinsing with ozone/water as known in the art and suggested by Lampert (to be a standard semiconductor procedure) with reasonable expectation of producing device without unwanted impurities (Teramoto column 4 lines 19-21, Varhue column 5 lines 10-12, Wasserman column 2 lines16-20, Lampert Background).

Application/Control Number: 09/842,315

.Art Unit: 2813

Page 5

# Response to Arguments

4. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

The examiner notes that most of the amendments consist of limiting the process to applying the etchant while spinning the wafer. Wasserman teaches this process.

Regarding the amendment of not exposing the substrate to air (rather than an atmosphere), the amendment has caused the removal of the 112 rejection, but does not avoid the prior art.

#### Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Meikle US006426288B1 teaches etching by spin etching

Verhaverbeke US 20020063169A1 teaches wet etching and cleaning of wafers is

done by immersing the wafers into a liquid (paragraph 0005). Verhaverbeke also

teaches that for fast single wafer processing, the liquid can be sprayed on a wafer wile
the wafer is spinning (paragraph 0006). Verhaverbeke teaches this method has
increased throughput. Verhaverbeke then teaches an improved method for spin
etching/cleaning wafers (paragraphs 0007 and 0018).

. Art Unit: 2813

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (703)-306-9168 and e-mail address is <a href="mailto:David.blum@USPTO.gov">David.blum@USPTO.gov</a>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr., can be reached at (703)-308-4940. Our facsimile number for Before-Final Communications is (703)- 872-9318 and for After-Final Communications is (703)- 872-9319. The facsimile number for customer service is (703)-872-9317. Our receptionist's number is (703)-308-0956.

David S. Blum

February 4, 2003